

# **Determination of Eligibility – Boeuf River Bridge**

## **Louisiana Statewide Historic Bridge Inventory**

**DOTD Structure No. 05420260907001;  
Recall No. 026240**

Prepared for

**Louisiana Department of  
Transportation and Development**

Prepared by



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## Introduction

The Louisiana Department of Transportation and Development (LADOTD) has requested that Mead & Hunt, Inc. (Mead & Hunt) evaluate the Boeuf River Bridge (DOTD Structure No. 05420260907001; Recall No. 026240) to identify if it is potentially eligible for the National Register of Historic Places (National Register). Review of eligibility for listing in the National Register is being undertaken as part of Section 106 of the National Historic Preservation Act of 1966 (Section 106) review for the proposed project. The Parker through-truss bridge was constructed in 1938-39 to carry Louisiana Highway (LA) 15 over the Boeuf River in Richland Parish. This report presents the findings of the National Register evaluation conducted for this structure.

## Description

The Boeuf River Bridge carries LA 15 over the Boeuf River approximately one mile west of Alto in rural Richland Parish. It was erected on the partially realigned Monroe-Alto Highway (LA 15) in 1938-39 as part of State (Bond) Project No. 5104-C and Federal Aid Project No. 165-A. Known originally as the Alto Bridge, it replaced an existing bridge on the adjacent original alignment. In the *Tenth Biennial Report*, the Louisiana Highway Commission included the new bridge as one of the state's major bridge construction projects on existing paved highway routes. The bridge also reflects the 1938 increase in standard pavement lane width from 10 to 11 feet.<sup>1</sup>

The bridge's overall structure length of 493 feet includes a single steel Parker through-truss main span and nine concrete tee-beam approach spans. The Parker truss has a clear span of 160 feet and an out-to-out deck width of 30.2 feet, with a roadway width of 24 feet that accommodated two 11-foot lanes and curbs. The polygonal built-up top chord is comprised of riveted back-to-back channels with a top plate and bottom V-lacing. The built-up bottom chord is comprised of back-to-back channels with batten plates riveted on the top and bottom. All truss verticals and diagonals except center diagonals are rolled I-beams. The crossed center-panel diagonals are back-to-back angles with riveted batten plates. Truss members are framed together at riveted gusset-plate connections. Portal bracing members are paired angles with riveted V-lacing, but show evidence of repairs with rivets replaced with hex-head bolts. Sway bracing panels are comprised of single and back-to-back riveted angle members, with some rivets replaced with hex-head bolts. Portals and sway bracing panels have been bent and damaged by tall vehicles and subsequently repaired in most instances. The replacement of rivets with hex-head bolts in lower areas of the portals and bracing may indicate minor clearance alterations or simply repairs. Overhead lateral bracing is comprised of paired angles with riveted V-lacing. The floor system consists of rolled I floor-beams and stringers. Bottom lateral braces are crossed angles. Expansion bearings are steel rockers.

The truss main span is supported by reinforced-concrete dumbbell-shaped piers with hexagonal end columns joined by a concrete web. The approach spans are supported by square concrete pile bents with square pier caps.

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<sup>1</sup> Louisiana Highway Commission, *Tenth Biennial Report...for the period January 1, 1938 to December 31, 1939* (Baton Rouge, La.: Louisiana Highway Commission, 1939), 12-13.



Approach railings are simple square concrete posts with two rectangular concrete rails. The original truss rail of paired channels is now partially hidden by a modern guard rail that extends the length of the structure. The deck and curbs are concrete on all spans. The concrete railing end posts, which are designed in a simple Art Deco style, are scribed with the bridge completion date ("1939") and the route number ("LA 15"). The concrete railings and end posts are unaltered.

Main and approach spans retain integrity of design and materials. The only alterations appear to be the replacement of some rivets with hex-head bolts in the truss bracing and upper connections and the addition of a modern guard rail along both sides of the roadway.

## Statement of Significance

Fixed-span truss bridges became common in Louisiana beginning in the early twentieth century. Standard plans were developed by the Louisiana State Highway Department and its successors, the Louisiana Highway Commission (LHC) and Louisiana Department of Highways (LDH), between 1917 and the 1960s. They included a variety of arrangements (through, pony, or deck), types (Pratt, Parker, Camelback, Warren, or K-truss), lengths, and widths. Extant steel through truss examples, such as the Boeuf River Bridge, are distributed throughout the state but are relatively few in quantity. Currently there are only 14 extant pre-1971 steel through-truss bridges identified in Louisiana (not including through-truss spans on movable bridges).<sup>2</sup> Of the 14 extant pre-1971 steel through-truss bridges in Louisiana, seven have been identified as Parker through-truss bridges.<sup>3</sup>

The Boeuf River Bridge is an example of a steel Parker through-truss bridge. The Parker truss was developed in 1870 and is simply a variation of the widely adopted Pratt truss. Vertical members and diagonals slope down towards the center, as in the Pratt design, but with a polygonal top chord rather than one parallel to the bridge deck. In this configuration, the truss depth was reduced from the center, where more strength was required, to the ends of the truss, where less strength was required. Less steel was needed for its construction, resulting in a more efficient design. The Parker truss supplanted the basic Pratt truss in the early twentieth century as the preferred long-span truss.<sup>4</sup>

Federal relief programs of the New Deal fostered a period of rapid infrastructure growth in the state, including bridge building. These programs peaked in Louisiana between 1933 and 1938. Many local and state transportation projects in Louisiana were being completed through a federal relief program.<sup>5</sup> Built in 1938-39, the Boeuf River Bridge is of this era; however no direct association with a federal relief program has been found.

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<sup>2</sup> LADOTD Master Structure File and Federal Highway Administration (FHWA) National Bridge Inventory data, available from the LADOTD and FHWA, respectively, Baton Rouge, La.

<sup>3</sup> This statistic was determined using locational data provided in the LADOTD Master Structure File and various online interactive mapping and aerial photography applications, and reflects current information as of November 2012

<sup>4</sup> National Research Council, *A Context for Common Historic Bridge Types*, prepared for the National Cooperative Highway Research Program, Transportation Research Council, National Research Council, by Parsons Brinckerhoff and Engineering and Industrial Heritage (2005), 3-34.

<sup>5</sup> Mead & Hunt, "Historic Context for Louisiana Historic Bridge Inventory (draft)," prepared for the Louisiana Department of Transportation and Development (September 2012), 22-24.



In the 1930s, the LDH developed at least 13 standard plans using the Parker truss, ranging from 120 feet to 250 feet. Two Parker truss standard plans have been identified that reflect the dimensions of the Boeuf River Bridge's 160-foot span and 24-foot roadway. The two plans have the same standard plan number (s-h-t 34-15) and appear to be subsequent revisions of a single, earlier plan used for the Boeuf River Bridge in 1938-39. Original and revision dates show on the plans and appear to read "September 1937," with 1946 and 1957 revision dates though the small text is not clearly discernible.<sup>6</sup>

## Discussion of Eligibility

The Boeuf River Bridge was evaluated for listing in the National Register under *Criterion A:*

*Transportation* and *Criterion C: Engineering*. No evidence suggests that the bridge has significance for its association with important individuals associated with Louisiana bridge history, Richland Parish, or the Louisiana State Highway Department, LHC, or LDH. As such, it is not recommended eligible under *Criterion B: Significant Person*.

For a bridge to be eligible under *Criterion A: Transportation* it must be significant for its association with Louisiana's transportation history. This is typically achieved by maintaining prominence as an important crossing within a larger transportation network, such as a highway. The Boeuf River Bridge was completed by 1939 as part of the improvement of LA 15 between Monroe and Alto, and, does not represent a significant project or achievement of the department. The Boeuf River Bridge is recommended not eligible under *Criterion A: Transportation*.

The bridge was also evaluated under *Criterion C: Engineering*. To be eligible under this criterion, a bridge must embody distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value. The Boeuf River Bridge is one of 14 extant pre-1971 steel through truss bridges and one of seven Parker through trusses in Louisiana. The primary character-defining feature of a Parker truss bridge is the truss itself including the polygonal top chord, bottom chord, inclined end posts, diagonals in each panel, and different length verticals.<sup>7</sup> As noted in the LHC's *Tenth Biennial Report*, the bridge was considered one of several major bridge construction projects for the biennium 1938-39 and also reflects wider highway lane standards established in 1938.<sup>8</sup>

With integrity of design and construction, the Boeuf River Bridge is an outstanding representative of the LHD's use and refinement of its standard plan for the Parker truss as used for state highway crossings in the New Deal era. The bridge adheres to the known standard plans with a minor exception—two vertical members (U2-L2 and U3-L3) appear to use a rolled section rather than the built-up section with four angles as indicated in the plans. This variation from the standard is thought to result from a revision that was subsequently made in 1946 or 1957. As such, the Boeuf River Bridge is recommended eligible

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<sup>6</sup> Information based on a review of archived and digitized standard plans for 160-foot truss spans provided by LADOTD, Baton Rouge, La.

<sup>7</sup> *A Context for Common Historic Bridge Types*, 3-35.

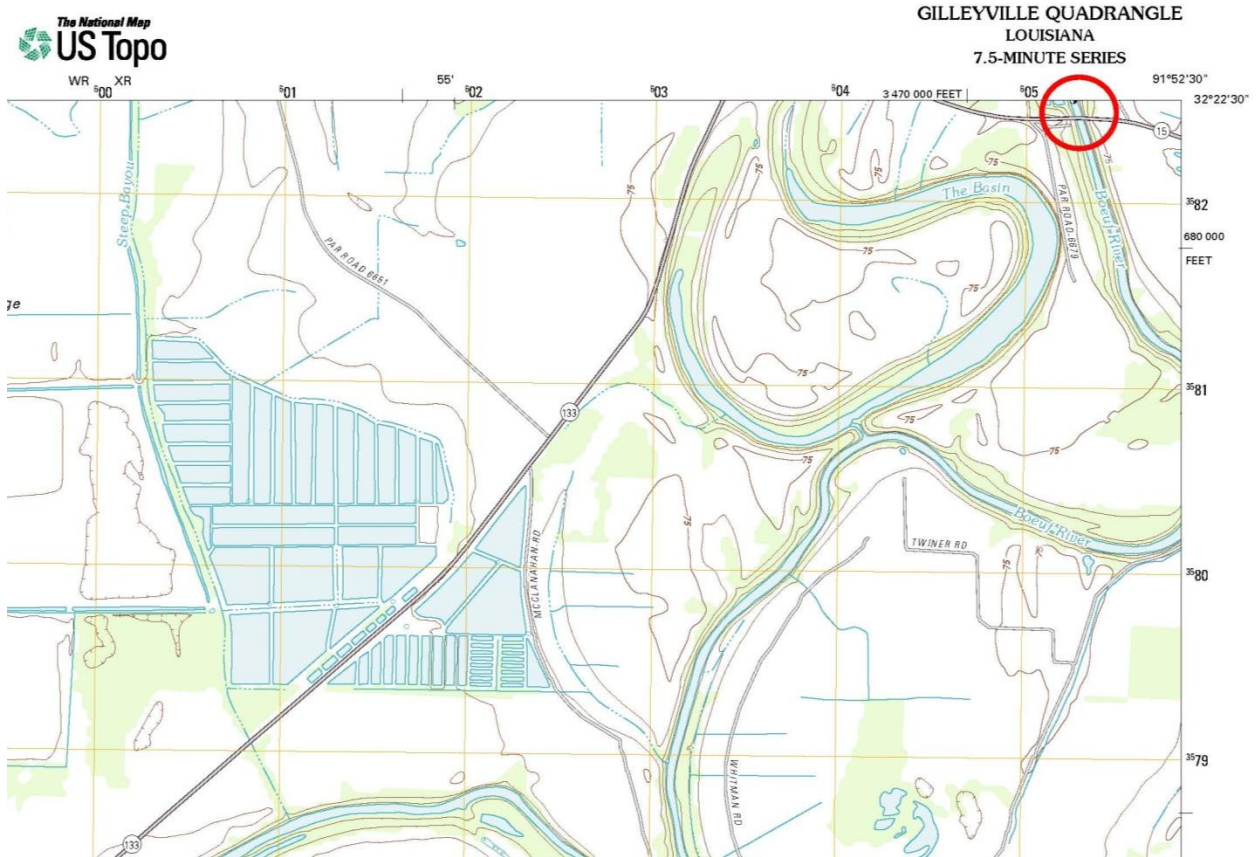
<sup>8</sup> Louisiana Highway Commission, *Tenth Biennial Report . . . for the period January 1, 1938 to December 31, 1939* (Baton Rouge, La.: Louisiana Highway Commission, 1939), 12-13.



under *Criterion C: Engineering* as an intact example embodying the distinctive characteristics of a steel Parker through truss bridge in Louisiana and as an excellent representative example of this type, of which few remain in the state.



## Location Map



U.S. Department of the Interior, "Gilleyville Quadrangle, Louisiana 7.5-Minute Series." United States Geological Survey (USGS) 7.5-minute quadrangle, 2012.



## Photographs



*The Boeuf River Bridge. View facing northeast.*



*East approach and portal. View facing west.*





*West portal and deck. View facing east.*



*West approach spans and substructure. View facing southeast.*





*West approach concrete railing and end post with date. View facing east.*



## Bibliography

U.S. Department of the Interior, "Gilleyville Quadrangle, Louisiana 7.5-Minute Series." United States Geological Survey (USGS) 7.5-minute quadrangle, 2012.

Louisiana Highway Commission. *Tenth Biennial Report...for the period January 1, 1938 to December 31, 1939*. Baton Rouge, La.: Louisiana Highway Commission, 1939.

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